This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) In a computer system, a method for simplifying simulation of a complex ~~simulating a~~ dynamic system, said complex dynamic system comprising ~~with~~ a plurality of interacting nodes of interest in a network of said nodes of interest, said method comprising:

providing a plurality of said nodes of interest representative of a living organism in said computer system, said nodes of interest being established at a selected plurality of levels of a nested hierarchy of source-sink relationships, each node of interest having at least one input, at least one output paired with said at least one input, at least one transformation of inputs, at least one transformation of outputs, a measurable ratio of input transformation rate to output transformation rate of an input/output pair, at least a first activated state in the node corresponding to an excess measurable ratio of input to output, at least a second activated state in the node corresponding to a deficit measurable ratio of input to output, and transient storage of a product of the input; ~~and~~

for each node of interest, defining a balanced state between said first activated state and said second activated state, said balanced state corresponding to a zero error between said measurable ratio and a preestablished balanced ratio, said preestablished balanced ratio corresponding to a mathematical critical point in thermodynamic energy; and

seeking said balanced state as homeostasis at each level in said nested hierarchy to account for interaction between nodes of interest throughout said nested hierarchy.

2. (Original) In the method according to claim 1 further including the steps of: for each said node of interest, sensing for non-zero error between said measurable ratio and said preestablished balanced ratio; and

using said non-zero error as a control signal to mediate at least one of said inputs, said outputs and an external process.

3. (currently amended) The method according to claim 2 ~~wherein said node is representative of a living organism and~~ wherein said error signal provides input to a regulating element for regulation to a condition of homeostasis.

4. (canceled) ~~The method according to claim 2 wherein said node is representative of a non-living system and wherein said error signal is at least an indication of imbalance in energy distribution.~~

~~pathways span multiple elements in a system across multiple dimensions.~~

5. (Original) The method according to claim 2, further including:

establishing pathways between outputs of first selected nodes of interest to inputs of second selected nodes of interest.

6. (Original) The method according to claim 2 further including depicting each said four dimensional model in five orthogonal dimensions of space, time and grayscale, said grayscale representing a mapping from a second temporal dimension.

7. (Original) The method according to claim 6 further including providing feedback across said five orthogonal dimensions from said old four dimensional model to produce a new four dimensional model, said old four dimensional model and said new four dimensional model together constituting a six dimensional model.

8. (Original) The method according to claim 1 wherein said critical point is selected for maximum stability of said balanced state.

9. (Original) The method according to claim 1 wherein said critical point is selected in response to sensing said outputs of said nodes.

10. (currently amended) In a computer system, a modeling node for use in simplifying simulation of a complex~~simulating a~~ dynamic system in a network of said nodes, each said node comprising, at each level in a nested hierarchical structure of source-sink relationships:

at least one input;

at least one output paired with said at least one input;

at least one transformation of inputs;

at least one transformation of outputs;

a measurable ratio of input transformation rate to output transformation rate of an input/output pair;

at least a first activated state in the node corresponding to an excess measurable ratio of input to output;

at least a second activated state in the node corresponding to a deficit measurable ratio of input to output;

transient storage of a product of the input; and

a balanced state between said first activated state and said second activated state, said balanced state corresponding to a zero error between said measurable ratio and a preestablished balanced ratio, said preestablished balanced ratio corresponding to a mathematical critical point in thermodynamic energy as homeostasis at each level in said nested hierarchal structure to account for interaction between nodes throughout said nested hierarchical structure;

said hierarchical structure being representative of a living organism.

11. (currently amended) In a computer system, a method for simplifying analysis~~, synthesis,~~ and control of a complex living system, said complex living system having both static and dynamic network topology and having a plurality of interacting components ~~that can be represented in phase space~~, said method comprising:

a. categorizing the interacting components using ~~an object-process~~ a workflow description having at least two scales, said ~~object process~~ workflow description being operative to abstract a scale invariant description of dynamic flows at a current hierarchy of said ~~object process~~ workflow description; thereafter

b. determining a ratio of parameters controlling a phase transition between phases, said phases being defined by boundaries in a general ~~input-output graph~~ source-sink relationship for a coarsest grained level of hierarchy; thereafter

c. repeating steps a and b for sublevels in said hierarchy; thereafter

d. defining critical points for all levels and sublevels in said hierarchy;

e. determining a parameter range that produces a steady state at a minimum thermodynamic flux for each said ratio obtained in step b;

f. defining a ~~universal module~~ generic node for optimal transport and control of dynamic critical points at each level;

g. determining ~~phase space location~~ distance of each said ~~universal module~~ generic node from its said dynamic critical point relative to its error free state; and

outputting a hierarchical ~~phase~~ diagram comprising a set of said critical ~~system~~ points ~~parameter locations in said phase space~~.

(3) ok